THE PENNY MAGAZINE

OF THE

Society for the Diffusion of Useful Knowledge.

214.] PUBLISHED EVERY SATURDAY. [AUGUST 1, 1835.

CHINA.—No. I.

THE CITIES OF CHINA.

[North Gate of Pekin.]

THERE is perhaps no remote country, unconnected with us by the ties of subjection or alliance, concerning which so much curiosity has been felt as concerning China. This results from a combination of such various circumstances as can be applicable to no other country; and which therefore renders our interest about China quite a peculiar feeling. China stands alone among the nations; and this is not so much a consequence of that restrictive policy by which the government so sedulously checks the intercourse with strangers, as a result of the character, habits, and institutions, by which the Chinese are more palpably distinguished from *all* other nations claiming to be civilized, than any two of the least approximating of these nations are distinguished from each other.

This is alone sufficient to awaken our interest and curiosity concerning so singular and remote a nation. But there is much more than this to draw our attention towards it. The remote antiquity which it claims, and which seems to render it the oldest of existing nations, makes us anxious to investigate the details of that condition to which it has been brought by a civilization which dates from more ancient times, and has been less interrupted than any other. The knowledge that the energy of comparatively recent impulses has carried us much beyond this old nation in the ways of civilization, mingles something of self-complacency with the interest with which we regard a people who seem almost exempt from the influence of those circumstances which work change in all things, and who do not at present appear to differ much from what they were at the time when our own forefathers were naked savages roaming in the wilderness, and contending for their food with the wolves and the hyænas. Our curiosity concerning the Chinese has been all the more stimulated by the anxiety with which they have laboured to exclude strangers from their country, and the consequent difficulty of acquiring that knowledge concerning them which it seemed desirable to obtain. Our own country, in the common and daily use of tea, has adopted in the most decided manner one of the most prominent habits of the Chinese, for the gratification of which it still depends upon China, and maintains with it an extensive commercial intercourse. It is our impression that most of our readers will be glad to become acquainted with China as the country to which all the above considera-

tions apply,—to which we are indebted for that refreshing beverage which has wrought a great alteration in our own domestic usages,—which so nearly adjoins the British dominions in the East,—and in which a more than ordinary interest is at present felt in consequence of the opening of the tea-trade and the recent transactions at Canton. It is therefore our intention, at short intervals, to furnish a series of papers, in which it will be endeavoured to combine, under distinct heads, the substance of the best and most interesting information concerning China and the Chinese people which has hitherto been presented to the public. We begin with a description of the cities.

The cities of China are divided into classes, and the distinction is nicely and precisely marked by the last syllable of their names, which is in fact a distinct monosyllabic word, indicating their size, rank, and municipal jurisdiction or dependance. These monosyllables, one or the other of which is found at the end of the name of every city, are *fû* or *fou*, *cheu*, and *hien*. *Fû* denotes a city of the first class, having under its jurisdiction a certain number of cities of the two inferior classes. *Cheu* denotes a city of the second class, subject to the jurisdiction of its *Fû;* and *Hien*, a city of the third class, subordinate to its *Cheu*, as well as under the jurisdiction of its *Fû*. The study of geography might be considerably facilitated if this practice of the Chinese were general, and every nation, by a simple affix to the names of their cities and towns, would thus explain at one glance their relative rank or importance.

According to Father Le Comte, there were in his time more than 160 cities of the first class, 270 cities of the second class, and upwards of 1200 of the third, besides a number of walled towns no included in any of these classes.

As the cities of China generally have a strong resemblance (which in most cases approaches monotony) to each other, we need only describe a few of the principal. But, before doing this, we may mention the main features that are common to them all. The cities of China are formed on a regular plan, which is square whenever the situation and nature of the ground will admit. They are all enclosed by high walls, with large gates of more strength than beauty. Towers, which vary in elevation, but which are sometimes eight or nine stories high, and in form sometimes round, but more commonly hexagonal or octagonal, are built at regular distances; and, when practicable, a wide ditch, filled with water, surrounds the whole. The streets are in straight lines; the principal of them are about thirty feet wide, but the houses are meanly built, having rarely more than one story above the ground-floor; so that the width of the streets, though not too much for the thronging population and bustle of a Chinese town, conduces but little to beauty or effect. The shops are adorned with silks, porcelain, and japanned wares, the most brilliant of which are hung outside the door to attract customers, and (the practice being universal) give the main streets a gay and somewhat of a theatrical appearance. A large board is suspended from the front of each shop; it is either gilt, or painted with some bright colour and varnished, or some fanciful sign, with the names of the principal articles sold in the shop inscribed upon it. These showy sign-boards, placed at equal distances on both sides the streets, give the whole extent the appearance of a long colonnade, rather curious than beautiful.

Among the descriptions of Marco Polo, we may refer to those of Kin-sai, or Hang-cheu-fu, and Ta-Tu, or Pekin.

The first of these, *Kin-sai*, a name which signifies "the Celestial City," he extols as being "pre-eminent to all other cities in the world in point of grandeur and beauty, as well as from its abundant delights, which might lead an inhabitant to imagine himself in paradise." It was then said to be a hundred *li* * in circuit, with streets broad and extensive, and squares or market-places of prodigious size, proportionate to the immense population. It was situated between a lake of sweet transparent water and a river of great magnitude, and traversed in every possible direction by canals, large and small, which carried with them all the filth of the city into the lake, and finally into the sea. These canals were traversed by almost innumerable bridges, without which there could have been no land-communication from one place to another. Those thrown over the principal canals, and connecting the main streets of the city, had arches so lofty and so well built that vessels could pass under them without striking their masts, while carts and horses were passing over them.

The second of these, or Peking, he described as perfectly square. Each side was six miles in length, making altogether an extent of twenty-four miles. The walls were such as have just been described as common to the Chinese cities, but Marco Polo adds, that all the battlements were kept white. The whole plan of the city was laid out by line, and the streets were so straight, that when a person ascended the wall over one of the gates, and looked before him, he could see the gate opposite to him, on the other side of the city. The allotments of ground were square, and exactly in a line with each other, each allotment allowing room for houses, with corresponding courts and gardens. One allotment was assigned to each head of a family. "In this manner," continues the Venetian traveller, "the whole interior of the city was disposed in squares, so as to resemble a chess-board, and planned out with a degree of precision and beauty impossible to describe." Twelve gates, three on each side of the square, gave ingress to and egress from the city, and each gate had a guard of 1000 men. In the centre of the whole rose a lofty tower, or belfry, and when its bell, which was sounded regularly every night, had struck its third stroke, no one could be found in the streets with impunity, unless upon some urgent occasion,—such as to call assistance to a female in labour, or to a person suddenly attacked with sickness, and even then it was necessary to carry a light. To escape detection was difficult, for strong parties of the guards continually patrolled the streets during the night. Those seized without having lights and imperative motives for being abroad after the third bell, were carried the next morning before the magistrates, and punished with a greater or less number of strokes of the bamboo, according to circumstances. The suburbs beyond the gates, in extent and population, if they did not exceed, equalled the city. Here were situated the hotels or caravanserays for the abode of merchants arriving from different parts; and, as has been practised in Turkey up to our days, the people from one province or kingdom were not mixed up with those from another, but each class had their separate caravanseray, where they lived among themselves.

The first of these cities, which was once the capital of southern China, and, at the time of Marco Polo, the residence of the imperial court, has much declined since then, and has had its name changed. As *Hang-cheu-fu*, it is, however, described by modern travellers as a place of immense extent, intersected by numerous canals, and still containing an overflowing population. The streets, though narrower, are paved as they were in the days of the Venetian traveller; now, as then, there are guards placed by night at the top of the lofty bridges, and on mounds, or towers, to watch the breaking out of any fire, and to give and procure all the assistance necessary in a place where every house is built of wood. And on the outside of every house, its

* A *li* is equal to 632 English yards.

occupant is obliged to hang a scroll, or writing, containing the name of each individual of his family, whether male or female. "When any person dies, or leaves the house," says Marco Polo, "the name is struck out, and upon the occasion of a birth it is added to the list. By these means, the great officers of the provinces and governors of the cities are at all times acquainted with the exact number of the inhabitants." It is to be observed that this last ancient regulation, as well as that of the fire-police, is common to all the great Chinese cities. As to the beauty and transparency of the lake on which Kin-sai, or Hang-cheu-fu is situated, and the pleasantness of its neighbourhood, all modern travellers are agreed. The lake and the gay scenes that occur upon it have been more particularly praised. Staunton describes it as a beautiful sheet of water, perfectly pellucid, and surrounded by an amphitheatre of picturesque mountains. Du Halde says, its banks are ornamented with country-houses, temples, and Bonze-monasteries, and Mr. Barrow was agreeably struck by the vast number of yachts and barges sailing to and fro on the bosom of the lake, "all gaily decorated with paint and gilding, and streaming colours, the parties within them apparently all in pursuit of pleasure." Lord Macartney, after mentioning that he was upwards of two hours in passing through the city, which he found more extensive and more populous than he had imagined—that it was very closely built, having narrow streets, paved with broad flat stones, which reminded him of the courts in London—that almost every house was a shop, and that he observed in some of these shops great quantities of furs, broad cloth, and long ells, mostly imported in English bottoms to Canton, adds, "the environs of the town are very beautiful, embellished by an extensive lake, a noble canal, with many inferior ones, and gentle hills, cultivated to the summit, interspersed with plantations of mulberries, and dwarf fruit-trees, sheltered by oaks, planes, sycamores and camphors. On one side of the lake is a pagoda in ruins, which forms a remarkably fine object. It is octagonal, built of fine hewn stone, red and yellow, of four entire stories, besides the top, which was mouldering away from age: very large trees were growing out of the cornices: it was about 200 feet high. It is called the tower of the Thundering Winds, to whom it would seem to have been dedicated, and is supposed to be 2,500 years old."

The present state of the metropolis of China will be described in a future Number.

THE FOSSIL ELK OF IRELAND.

(*Cervus megaceros.*)

Among the fossil relics which our British Islands afford, none are more interesting than those of a species of elk now extinct, which once abounded in the localities where its remains are discovered. The interest which attaches to the remains of the animal we propose to examine, does not arise from the circumstance of the vaguely-remote epoch in which it existed, nor from its having witnessed, when it existed, a condition of the earth's surface unlike any thing at present, changed by some contemporary catastrophe, the first of many which have succeeded;—on the contrary, the interest we feel is from the circumstance that its relics indicate a condition of things in our latitudes precisely similar to what now obtains,—that the date of its extinction is, geologically speaking, very recent,—that in all probability it was coeval with man, and formed one of the objects of chase to the savage hunter in a thinly-peopled country. If we be right in these conjectures, the bones of the *fossil elk* will belong to a later epoch than most of the mammalia whose fossil relics have been yet discovered.

In the cave at Kirkdale in Yorkshire, (the cave being a natural fissure in a rock of *oolite*, a sort of limestone, which abounds with *corals* and portions of *echini* throughout its substance,) Dr. Buckland found the fossil relics of twenty-two species of animals, principally mammalia: viz., of *Carnivora*, the hyæna, tiger, bear, wolf, fox, weasel, and an unknown animal about the size of a wolf;—of *Pachydermata*, the elephant, rhinoceros, hippopotamus, and horse;—of *Ruminantia*, the ox, and three species of deer;—of *Rodentia*, the rabbit, water-rat, and mouse;—of *Birds*, the raven, pigeon, lark, and a small species of duck. The relics of these animals (consisting of their bones and teeth) were covered by a layer of fine mud, spread over the floor of the cave, which, on the removal of the mud, "was found to be strewed all over, like a dog-kennel, from one end to the other," with hundreds of teeth, and "broken and splintered fragments of bones of all the animals above enumerated." * * * "Those of the larger animals, elephant and rhinoceros, were found coextensively with all the rest." Many had evidently been gnawed, and exhibited teeth-marks which fitted the canine teeth of the hyæna that occur in the cave, and which appears to have been a third larger than any species now existing. Every circumstance, indeed, conspired to prove that this cave had long been the unmolested resort of these ferocious animals, which had dragged in the smaller animals whole, the larger piecemeal, in order to devour them at leisure,—nay, that they often devoured each other.

The coeval existence in our island (and we may add on the adjacent continent of Europe, as the caverns of Gailenreuth, Muggendorf, Bauman, Fouvent, &c., testify) of the hyæna, tiger, bear (*Ursus spelæus**), and other animals, with the elephant, rhinoceros, and hippopotamus, all appearing to be distinct from now-extant species, but certainly agreeing with them in habits and manners, indicates the climate and the productions in these latitudes to have been very different during their epoch from what we now experience, and we are thrown back upon a remote era. Yet is that era *not geologically* remote, for, long before the land existed where they dwelt, the sea had deposited that rock of oolite, the caverns of which some of them habitually haunted, and in which the bones of all are found. Respecting these fossil-bones, Dr. Buckland observes:—"The facts I have collected seem calculated to throw an important light on the state of our *planet at a period antecedent to the last great convulsion* that has affected its *surface;* and I may add that they afford one of the most complete and satisfactory chains of consistent circumstantial evidence I have ever met with in the course of my geological investigations." It is, however, to a still more recent era than that alluded to by Dr. Buckland that the existence of our noble elk is, we think, to be attributed, at least as far as it regards our own islands.

The bones of the "Fossil Elk of Ireland" (*Cervus megaceros*) occur in the greatest abundance, as is implied by the name, in the bogs and marl-pits of that country. They are also found in similar situations in the Isle of Man, as well as in the alluvial strata of England, and have been dug up also in France, Germany, and Italy, where, according to Cuvier, they were found in the same strata with bones of elephants. Ireland, however, appears to have been the congenial habitat of this animal. There its remains are, in some districts, so common, that they have ceased to be regarded as *curiosities*, and are either used for any common purpose, or are neglected till they become destroyed. It is very seldom, however, that an entire skeleton has been discovered, the remains consisting

* In the cave of Gailenreuth, the remains of this gigantic species are found in incredible numbers, as well as in those of Muggendorf and Bauman.

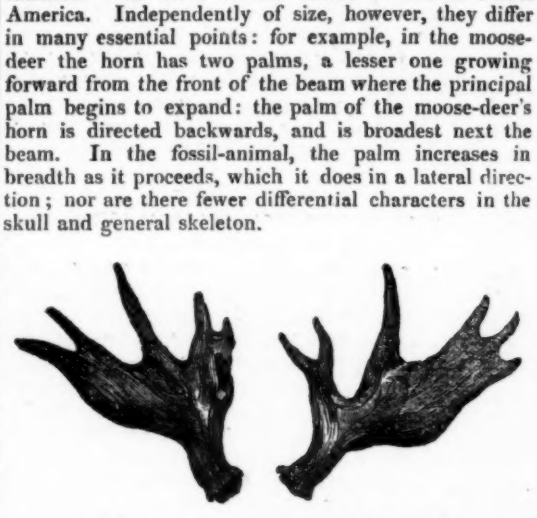
[Horns and Skull of the Fossil Elk of Ireland.]

for the most part of skulls, with the horns attached, and various separate bones disposed without any order. They generally occur in a deposite of shell-marl, covered by a layer of peat, and resting on clay. In this situation one of the few entire skeletons discovered is stated to have occurred. "Most of the bones," says Archdeacon Maunsell, "and heads, eight in number, were found in the marl; many of them, however, appeared to rest on the clay, and to be merely covered with the marl." It is worthy of remark that the fossil remains of no other animals are mingled with them. Of the skeleton to which we have alluded, and which graces the Museum of the Royal Dublin Society, Mr. Hart drew up a memoir. "This magnificent skeleton," he observes, "is perfect in every single bone of the framework which contributes to form a part of its general outline; the spine, the chest, the pelvis, and the extremities are all complete in this respect; and, when surmounted by the head and beautifully-expanded antlers, which extend out to a distance of nearly six feet on either side, forms a splendid display of the reliques of the former grandeur of the animal kingdom, and carries back the imagination to a period when whole herds of this noble animal wandered at large over the face of the country."

The following are a few points of its admeasurement:

	ft.	in.
Length of the head	1	8¾
Breadth between the orbits		10½
Distance between the tips of the horns, measured by the skull	11	10
Ditto, in a straight line across	9	2
Length of each horn	5	9
Greatest breadth of palm	2	9
Circumference of the beam at the root of the brow-antler	1	0¾
Length of spine	10	10
Height to the top of the back	6	6
Ditto, to the highest point of the tip of the horn	10	4

None of the deer tribe of the present day can at all be compared for magnitude to this fossil species. It is singular, however, that until Cuvier pointed out the differences, the antlers were generally regarded as identical with those of the moose or elk of North America. Independently of size, however, they differ in many essential points: for example, in the moose-deer the horn has two palms, a lesser one growing forward from the front of the beam where the principal palm begins to expand: the palm of the moose-deer's horn is directed backwards, and is broadest next the beam. In the fossil-animal, the palm increases in breadth as it proceeds, which it does in a lateral direction; nor are there fewer differential characters in the skull and general skeleton.



[Moose-deer Horns with their Two Palms.]

Of the habits of the *Cervus megaceros* we can only form a conjecture. The size and lateral direction of its spreading antlers must have prevented its inhabiting the dense forest,—it must have dwelt on the heath-clad hills,—there, armed with the most powerful weapons of self-defence, it ranged secure from the assaults of any single aggressor, capable of dashing down the wolf or hyæna with a blow. Did man exist coeval with this animal in its native land? Most probably yes. A

head of the fossil elk, together with several urns and stone hatchets, were discovered in Germany in the same drain. "In the 'Archaiologia Britannica' is a letter of the Countess of Moira, giving an account of a human body found in *gravel* under eleven feet of peat, soaked in the bog-water: it was in good preservation, and completely clothed in *antique garments of hair*," conjectured to be that of the fossil elk. But what is still more conclusive, there exists a rib in the Royal Dublin Society, evidently bearing token of having been wounded by some sharp instrument, which remained long fixed in the wound, but had not penetrated so deep as to destroy the creature's life: it was such a wound as the head of an arrow would produce.

Of the causes which involved the fossil elk in destruction,—whether one general catastrophe universally affected the whole race wherever existing,—whether local causes, operating at different epochs, have successively extinguished the species, which might have lingered the longest in Ireland,—or whether its extermination has been effected by the hand of man, whose agency upon the animal creation is everywhere apparent, no decided opinion can yet be given. We know it existed, and that is all; its history and its fate are buried beneath the shadow of years gone by.

ADVENTURES IN MESOPOTAMIA.—No. II.

It seems wonderful to me when I think how much misery man is able to bear. I have sometimes been so very miserable that I have felt quite sure that if ever so little more sorrow came upon me it would break my heart in pieces. But more did come,—and I bore it; and more still came upon that,—and I bore it also. And I knew it was the same with others; and when they did die, it was not misery that killed them, but it was famine, or plague, or drowning that did it. It was thus with us now.

While we were watching with the utmost anxiety the gradual ascent of the water towards us, we were alarmed one morning by the information that the wife of Agha Yacub had died of the plague during the night. She had, it seems, been ill several days in her tent; but as men do not talk about their wives, we knew nothing of it till she was actually dead. This would not much have been minded if we had been upon the road; but shut up together as we were, and having leisure to brood over our dangers, this event was regarded with more dismay that I ever knew my countrymen feel about the plague. I, perhaps, felt more strongly on this subject than any one else, as I had learnt from the English to be more afraid than others were of being near those who are afflicted with that terrible disease. I am bound to say that our sympathy with the Agha for the loss he had sustained was much less strong than the anxiety with which we watched to see whom next the plague would smite; for we had very little hope that one victim would satisfy it. We had not long to wait. The husband of the woman was the next in whom the plague appeared, and, before he died, my own uncle, who was this man's particular friend, was also attacked.

Oh, how hard it is to tell what a struggle I felt then between my fears for myself and my duty to my uncle. I felt certain that I should take the plague and die if I went near him; and I did not at all wish to go so soon out of a world in which I believed that there were a great number of good things which I had not yet tasted, and many beautiful things which I had not yet seen. While I thought of these things, I sat outside the little tent in which my uncle lay asleep; and before long my thoughts were interrupted by hearing him call "Lazar! Lazar!"

When I entered the tent I stood still for a moment at a distance, hesitating whether to go to his side or not. He perceived my hesitation, and looked at me at first rather sharply; but, immediately after, his look changed to tenderness, and he said that he really believed the English were perfectly right in what they told me about the plague, and that I had, therefore, better stay at a distance while he talked to me. He then proceeded to acquaint me with the state of his affairs, and told me what I should do in the event of his death. He thus concluded:—"I have thought it best to talk to you about these things now, Lazar, because I know the plague too well to believe that the freshness and cheerfulness which I now feel is a token of any thing else than certain death. Very soon I shall become sleepy, and shall doze out the remainder of life in troubled sleep. I shall seem to suffer; but it is clear that no one can do me any good. I therefore charge you, Lazar, not to let any one come near me; and, of course, I need not tell you not to do so yourself. I did not expect that it would be my lot to die like a dog in the desert; but God sees fit that it should be so, and I do not murmur. Lazar, you have been a very dutiful nephew to me, and I hope that you will live long and prosper abundantly in the world."

Then my heart smote me because I had been thinking for myself more than for him; and I said to him:—"My father, forgive me for having thought that it was better to live among strangers without you, than to die in the desert with you. Shall I forsake you—I neglect you—I who owe all things to you?" Then I ran and threw myself upon his bed, and put my arms round his neck, and wept very much. My uncle raised himself up, and stretched out his arms as if to embrace me; but he changed his mind, and, thrusting me from him, commanded me, in a voice which I had been accustomed to obey, to withdraw to a distance. I did so. But when, on following nights and days, I saw his uneasy motions, and heard his heavy groans, I failed not to approach him, and did all I could think of to relieve or refresh him. I fanned his face and bathed it with water, or I arranged his bed-clothes, so as to render his dying bed more comfortable to him. Of this he could then take no notice, and I knew that he would never more become aware of my proceedings: but my own heart was satisfied.

When my uncle was dead, his old friends came and buried him, it being believed that there is no danger from *the corpse* of one who dies of the plague. I then made a heap of the things which my uncle had worn, and those on which he had lain, and those which had covered him, and burned them, as the English had instructed me. After that I made up a bed for myself, on which I might lie down and die when the plague should come upon me; for I felt certain that it would do so, after I had been so much with my uncle. But the plague-spot appeared on others, not on me: others died around me, and I continued to live. It seems strange to me now to think how different my feelings had at this time become from all that they ever had been and all that they are now. From the time that my uncle died, I ceased to have any sympathy or sorrow for those that I saw dying daily around me, and I also ceased to have any fear or care for myself. I had but one thought or one wish, which was to get away from this horrible place. No matter whither I went, so that I could get away: Bagdad itself, from which we had fled, would have seemed a paradise to me in comparison with the place in which I now was.

Our detention had already exceeded the fortnight which the Sheikh had considered as the utmost probable period of our stay; and yet the waters still went on increasing day by day. The number of deaths, however, which had happened among us, prevented our stock of dates from being consumed so soon as we expected;

yet still it was so much reduced that it became necessary to shorten our daily allowance. I really think there was not a moment in which I did not feel exceedingly hungry; and the utmost that we could do was to keep ourselves a very slight degree short of ravening and savage hunger. Oh, how earnestly we did long for even the frailest boat that was ever trusted upon the waters, that we might endeavour to escape in it to the dwellings of men. It so happened that this wish was not entertained in vain.

One morning we perceived, at the distance of rather more than half a mile from us, one of those small wicker boats which ply upon the Tigris and Euphrates*. As it did not seem that there was any person in it, we conjectured that it had escaped from its moorings somewhere on the Tigris. How we should secure it and avail ourselves of its assistance it did not take long to decide. Two poor Arabs, who were in the employ of the Sheikh, volunteered to go and secure the boat. Their offer was gladly accepted; and they immediately betook themselves to the water, which, at a very short distance from the mounds, was found to be so deep that the men were obliged to swim the rest of the way. When they had got rather more than half-way between the mounds and the boat, one of the men seemed to get faint-hearted, and to despair of accomplishing his undertaking. He therefore turned to swim back to us; but, as he returned, his vigour seemed rapidly to abate, and when he was within about a hundred yards of the mound, he sank, and we saw him no more.

The other man reached the boat in safety, and, after resting himself a little, paddled it towards us. When he came within speaking distance, he stopped. He told us that he could not with safety take more than three persons into the boat; and, as he thought himself entitled to some recompense for having risked his life in the undertaking, the three persons he would take were those who would make him the largest payment. This astounded all but the wealthiest among us; for, although a little reflection would have taught us the absurdity of the expectation, yet when we saw the boat coming towards us, every one exulted in the conviction that deliverance from our wretched thraldom was come at last. When the man in the boat spoke to us, however, our eyes were opened; and we could not but admit the truth of what he said, although every one who was not included among the happy three, disapproved of the principle by which the Arab's selection had been guided. Two wealthy merchants of Bagdad and one of Bussorah made much higher offers than the rest could afford, and were therefore accepted. Before they left us, however, they promised that on their arrival at Hit they would send a sufficient number of boats to take us all away; or if they failed in procuring the requisite number of boats, they would not fail to send back the one in which they were about to leave us, with an ample supply of provisions. Having soothed us by these promises, they entered the boat and rowed off. After this we had a new object of solicitude in watching for the promised boats. Long and anxious were our watchings. But the boats never came; and when we afterwards met at Bagdad the friends who had left us, they convinced us that it was impossible for them to fulfil their promise either as it regarded the boats or the provisions. The boatmen had generally died of the plague, and their boats had gone adrift; and in consequence of the plague and inundation provisions were not to be had at any price, the people living in the towns being themselves obliged to subsist upon their hoarded stores.

* These boats are of a circular form, and have the appearance of large basins. They are made of wicker-work, so coated over with bitumen as to be impervious to the water. Boats of this description are exceedingly ancient.

It was in the fourth week of our detention that we observed, one morning, that the water had not ascended above the tuft of camel-thorn which had been chosen the preceding evening as the mark by which we might know how far the water would increase during the night. Our rapture at this discovery was, however, checked for the time, by the fear that we were in some way or other deluding ourselves. The thing itself seemed too good to be true, after all that we had suffered; and it was possible that the tuft of camel-thorn which we saw was not the same which we had fixed on for a mark, but another higher up which had the evening before escaped our notice. We therefore set another mark with more precision, and some of us sat watching it all the day. In the evening we were unable to say that the water had either increased or decreased; but to know that there had been no decided increase during fourteen hours was joy sufficient for one time. The next morning many of us were at the water's edge before we could see distinctly. We saw at once that the water had *not* increased, and when there was more light, we saw that the water was *below* our mark: the Sheikh was able to put his hand, although it was rather a thick one, between the mark and the water's edge, without wetting the palm. Our delight was for a time quite boundless. Some thanked God upon their knees, some embraced each other, and some ran about the mounds as if they were mad, dancing, skipping, and shouting as they went. Our raptures were in time, however, sobered by the reflection that at the slow rate of decrease which we had witnessed, it must still be a long time before we should be able to escape.

The water, however, retired much more rapidly than it had increased; and, at the end of the fifth week, it had so far subsided, that, although the ground was far from being perfectly drained, we thought it prudent to resume our journey. Our party had been reduced more than one-half, and the survivors had become, through anxiety and want, the most feeble, emaciated, and deathly-looking wretches that were ever seen. It took us twice the usual time to travel the distance to Hit, where we waited until the face of the country had become dry, and then, instead of proceeding to Damascus, we returned to Bagdad. The city was desolate, and most of my uncle's friends were dead, and their houses overthrown. But by this time men had begun to recover from the state of stupor and indifference into which their multiplied calamities had thrown them. Regrets for the dead, and sympathy with the living, returned; and although so many of my uncle's friends were dead, there were not wanting those who, for his sake, extended to me their protection and assistance.

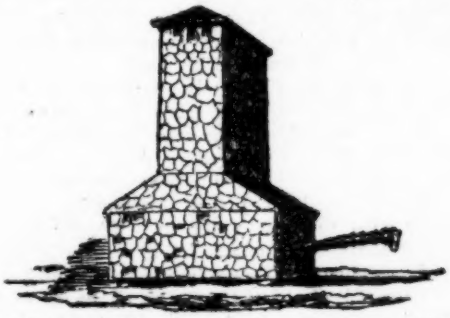
[*Erratum.*—The word "*American*," in the 15th line of the previous Article, is a misprint for "*Armenian*."]

Lord Burghleigh's Advice to his Son concerning Expense.—Touching the guiding of thy house, let thy hospitality be moderate; and according to the means of thy estate, rather plentiful than sparing, but not costly. For I never knew any man grow poor by keeping an orderly table. But some consume themselves through secret vices, and their hospitality bears the blame. But banish swinish drunkenness out of thine house, which is a vice impairing health, consuming much, and makes no show. I never heard praise ascribed to the drunkard, but for the well-bearing of his drink; which is a better commendation for a brewer's horse, or a dray-man, than either for a gentleman or a serving-man. Beware thou spend not above three of four parts of thy revenues, nor above a third part of that in thy house. For the other two parts will not do more than defray thy extraordinaries, which always surmount the ordinary by much: otherwise thou shalt live, like a rich beggar, in continual want.—*From 'Ten Precepts which William Lord Burghleigh, Lord High Treasurer of England, gave to his second Son Robert Cecil, afterwards Earl of Salisbury.'*

ANCIENT SIEGES.

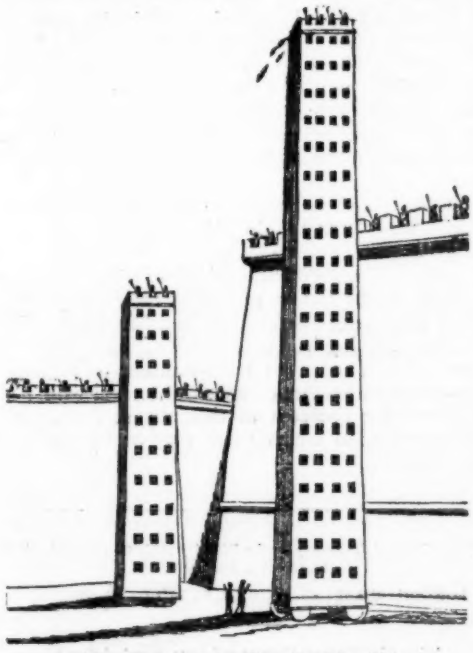
(*Abridged from* '*Historical Parallels*, vol. ii.')

In reading of such sieges as that of Numantia, one of the first things which strikes a reader not familiar with ancient warfare, is the extreme rudeness of the methods employed, and the vast expense of time and labour. Before the battering-ram was invented, force could avail little against solid walls; and men soon found out, with Wamba, in Ivanhoe, that their hands were little fitted to make mammocks of stone and mortar. A well-conducted escalade might succeed; a skilful stratagem might deceive the vigilance of the garrison; an ingenious general might devise some method of attack which should render walls useless, as in the attempt to burn out the Platæans, and might derive some advantage from natural facilities, or even from natural obstacles, so as to convert what the besieged most trusted in into the means of their destruction; but to overthrow or pass the walls by violence was commonly beyond his power. But the introduction of the ram worked a material change in the relative



[Battering-ram, combined with tower, from Pompeii, vol. i. p. 78.]

strength of the besiegers and besieged, for few walls could be found strong enough to bear the repeated application of its powerful shocks. Next in importance to the ram were those huge moving towers which overtopped walls, and were provided with drawbridges, by means of which, the battlements being previously



[Moveable towers, from Pompeii, vol. i. p. 80.]

cleared of their defenders by missile weapons from above, a body of troops might at once be thrown upon them.

No material alteration in the methods of attack took place till the discovery of gunpowder gave force enough to projectiles to batter down the strongest walls, without exposing men and machinery to the hazard of close approach. The only improvements which did take place consisted in supplying means by which the assailants might approach with less danger to the foot of the walls, and there apply the powerful ram, or, in some instances, resort to mining.

In illustration of these remarks we may notice, very shortly, two of the most remarkable sieges in ancient history, those of Tyre and Syracuse, both resolutely sustained, both finally successful, both carried on by rich and powerful nations, who commanded every thing that the best skill of the engineer, or the labour of numbers, could effect. The first was undertaken by Alexander soon after the battle of Issus, B. C. 333. From past ages the Phœnicians had been celebrated among Asiatics for their maritime skill, and Tyre was the most powerful of the Phœnician cities. Trusting in their naval strength to obviate blockade and famine, and in the height of their walls, and strength of their situation, to repel violence, the Tyrians refused admission to Alexander, remaining faithful to their engagements with Persia. Too weak at sea to assault the walls from his fleet, Alexander had no resource but to carry out a mole to the island. Near the walls there were three fathoms of water, which shoaled gradually to the shore. The mole was built of stone, heaped up, we may suppose, of rough uncemented blocks, like the Plymouth breakwater, and strengthened with piles; and the top was constructed entirely, or in part, of wood. At first it proceeded with despatch, but more slowly and more difficultly as it approached the walls, from which the besieged annoyed the workmen with missiles, and, at the same time, constantly harassed them from the sea. To protect themselves from these attacks the Macedonians built on the verge of the mole two high towers, armed with engines, and covered with raw hides as defence against darts armed with fire. These the Tyrians destroyed by a peculiarly constructed fire-ship. Having filled a large transport with dry twigs and combustible matter, they fixed two masts in the prow, heaped faggots high around them, and added pitch, sulphur, and everything that was proper to feed the flames. To each mast they fastened two yard-arms, from the ends of which two cauldrons were suspended, filled with combustibles. The ballast they moved entirely to the stern, to raise her head as high out of the water as possible. Thus prepared, they took advantage of a favourable wind to run her upon the mole, and set fire to her, the crew escaping by swimming; and both mole and towers were speedily involved in the conflagration. Meanwhile, the Tyrians, from ships and boats, assisted in the ruin, destroyed the piles, and burnt those engines which would otherwise have escaped the flames. The work therefore had to be recommenced and it was rebuilt on a larger scale.

While this labour was proceeding, Alexander's fleet was reinforced in consequence of the submission of the Cypriots and Sidonians, to an extent which enabled him to command the sea, and compelled the Tyrians to block up the mouths of their harbours. Numerous mechanics were employed in constructing military engines; some of which were placed on board the largest ships of the fleet, and the rest were mounted on the mole. The Tyrians, still to have the advantage of height, built wooden towers upon their walls facing the mole. This would seem scarcely necessary if we credit Arrian's assertion, that the city wall in that part was

150 feet high, but it gives us a scale for measuring the altitude of Alexander's towers, which we may assume, from this precaution, to have been as great or greater. On the side to the sea they cast fiery darts into the attacking ships, and showers of stones, which not only did much harm in their fall, but raised a bank which made it impossible to get close up to the walls. The Macedonians therefore were obliged to clear away these impediments; a work in itself of difficulty and labour, increased by the resolution of the Tyrians, who openly, by sending armed ships, and secretly, by means of divers, cut adrift from their moorings the vessels employed on this service. The Macedonians frustrated this method of defence by using chains instead of cables for mooring, and succeeded at last in clearing away the bank, and getting access to the wall. On the north side, and that next the mole, it resisted their efforts; but a breach was effected on the south side by battering from the ships, and an assault was made, but without success. On the third day afterwards, the breach being enlarged, a second assault was made under Alexander in person, and the town was carried. Eight thousand Tyrians were slain, and thirty thousand persons, natives and strangers, are said to have been sold for slaves.

The most remarkable feature of this siege is the battering in breach from the shipping, which would seem a most unstable base for the cumbrous and weighty engines which must have been used.

The siege of Syracuse, undertaken by the Romans under command of Marcus Claudius Marcellus, B.C. 213, is rendered most remarkable by the interposition of the celebrated geometrician, Archimedes. Many extraordinary stories are told of the wonderful things done by him, which, if they rested only on the authority of Plutarch, and other compilers of stories, it would be the natural and simple course to reject; but some of the most singular are affirmed by Polybius, almost a contemporary, well skilled in war, and of undoubted credit for honesty and discernment; and one point, of which Polybius makes no mention, has been ascertained to be practicable by modern experiment. It is to be regretted that but a fragment of his account remains.

Syracuse was divided into five districts, the little island of Ortygia, Acradina, Tycha, Neapolis, and Epipolæ. Marcellus directed his attack against Acradina, which adjoined the sea, with fifty quinqueremes, or vessels with five banks of oars, well filled with soldiers armed with all kinds of missile weapons to clear the walls. He had also eight ships fitted out in a peculiar way with machines called *sambucæ*, from some fancied resemblance to a harp. They were thus prepared: two ships were lashed together, the oars being taken from the two adjoining sides, so as to form, as it were, one large double-keeled vessel, affording a broad and stable base. A ladder was then made, four feet broad, of the necessary height, protected at the sides and above with gratings and hides, so as to form a sort of covered way to the very summit of the walls. It was then so placed, the foot at the stern, the head projecting beyond the prow, that it could be raised by ropes run through pulleys at the mast-heads. At the top was a platform large enough to contain four men, with high sides which turned on hinges, and which being let down served as bridges to connect the ladder with the walls of the besieged town.

At the request of Hiero, king of Syracuse, Archimedes had in past years constructed a great number of machines for casting stones and darts; with which the walls were so well supplied, that the Romans were defeated in every attempt to approach: Marcellus ran his ships by night beneath the walls, hoping to be within the range of these destructive engines. Here, however, he was anticipated, for Archimedes had hollowed chambers in the walls themselves, with narrow openings, like the embrasures of a Gothic castle, from which archery, and the smaller sorts of missile engines, were directed against the Roman ships with destructive effect. Against the sambucæ he had contrived machines, from which long beams or yards projected, when in use, far beyond the walls. These were heavily weighted with stone or metal to the extent of not less than ten talents, or 1250 pounds. A rapid circular motion being then given to the beam by machinery within the walls, this weighted lever was dashed against the ladder with such force as generally to break it, while the ship itself was exposed to considerable danger. This story not being good enough for Plutarch, he has told us, that when the sambuca was a good way off the walls, a stone ten talents weight was thrown into it, and then a second and third, which destroyed the vessel; and in consequence considerable ridicule has been thrown on the tale. As told by Polybius it seems little open to objection. Weights, not of half a ton, but several tons, are constantly to be seen on our wharfs suspended on cranes, at a considerable distance from a centre of motion. Add to one of these the machinery requisite to give a rapid circular motion to the projecting arm thus laden, and we have the engine of Archimedes, as described by Polybius. The geometrician had also fitted out powerful cranes, with hooks and chains, by which he could lift a ship almost out of the water. When it was raised to the greatest practicable height, the chain was slipped, and the vessel usually was either upset by the fall, or plunged so deep as to fill with water. Marcellus is reported to have observed (it must have been a forced joke) that Archimedes used his ships for cups to draw water in. Finally he was obliged to abandon the attack by sea. Appius Claudius, who conducted the siege by land, fared no better; and it was resolved at last to give up all hopes of succeeding by force, and trust to the slow operation of blockade. "Thus," says Polybius, "one man, and one art rightly prepared, is for some matters a mighty and a wonderful thing; for the Romans, having such power by land and sea, take away but one old man of Syracuse, might have expected immediately to capture the city; but while Archimedes was there, they dared not even to attack it in that manner, against which he was capable of defending it."

It is also said that Archimedes set the Roman ships on fire by means of burning mirrors, composed of a combination of plane mirrors, adjusted so as to reflect all the incident rays of light to the same point. The possibility of this has several times been the subject of inquiry to modern philosophers. Kircher took so much interest in the subject, that he went to Syracuse expressly to inquire into the probable position of Marcellus's fleet, and he arrived at the conclusion that it might have been within thirty yards of the walls. Buffon's experiments, made, as well as those of Archimedes, with a combination of plane mirrors, are conclusive as to the facility of setting tarred fir-plank on fire at a distance of one hundred and fifty feet, and the possibility of doing it at considerably greater distances. Similar planks, and even more combustible materials, were precisely what Archimedes had to deal with. He is said to have operated in this way at the distance of a bow-shot, in which there may very probably be exaggeration.

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

LONDON: CHARLES KNIGHT, 22, LUDGATE STREET.

Printed by William Clowes and Sons, Stamford Street.